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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/671,814      | 09/27/2000  | Kaname Kono          | 029493/0138         | 5929             |

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WASHINGTON, DC 20007

EXAMINER

WESSMAN, ANDREW E

| ART UNIT | PAPER NUMBER |
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1742

DATE MAILED: 03/25/2003

18

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| APPLICATION NO./<br>CONTROL NO. | FILING DATE | FIRST NAMED INVENTOR /<br>PATENT IN REEXAMINATION | ATTORNEY DOCKET NO. |
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09/671,214

9/27/00

Kono

029493-0130

EXAMINER

Wessman

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| ART UNIT | PAPER |
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1742

attachment  
to # 18

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Commissioner of Patents and Trademarks

The information disclosure statements, papers No. 8 (filed June 11, 2002), No. 9 (filed September 4, 2002) and No. 11 (filed October 1, 2002) have been considered. See attached copies.

Any inquiry concerning this communication should be directed to Andrew E Wessman at telephone number (703)305-3163.

ROY KING  
SUPERVISORY PATENT EXAMINER  
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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Paper No. 16

Application Number: 09/671,814  
Filing Date: September 27, 2000  
Appellant(s): KONO, KANAME

\_\_\_\_\_  
Martin Sulsky  
For Appellant

EXAMINER'S ANSWER

**MAILED**  
MAR 25 2002  
**GROUP 1700**

This is in response to the appeal brief filed January 6, 2003.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

The amendment after final rejection filed on September 17, 2002 has been entered.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

The appellant's statement in the brief that certain claims stand or fall together is agreed with.

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

Kalpakjian, S. "Manufacturing Processes for Engineering Materials, 3rd Ed." Pages 261-266, Addison Wesley Longman Inc. 1997

**(10) *Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

In view of the amendment after final submitted September 17, 2002, the rejections under 35 U.S.C. 112, 2<sup>nd</sup> paragraph have been withdrawn.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Kalpakjian textbook.

This textbook discusses (pages 261-266) various casting operations. One type of casting operation discussed is die casting, which is similar to the process disclosed in claim 1, as both processes essentially involve the injection of molten metal under pressure into a mold. Other casting operations discussed in the textbook are squeeze casting and semisolid metal forming, which are both more specific types of die casting operations and are also similar processes to the process disclosed in claim 1 (see page 265, paragraph 3). The textbook does not detail the steps of drawing the molten metal from a first chamber to a second chamber, and then injecting the molten metal into the die from the second chamber. However, it is well understood that even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. In *Re Thorpe*, 777 F2d. 695, 227 USPQ 964 (Fed. Cir. 1985). In this case, because the die casting processes of the textbook would be similar to the claimed process, therefore the products of the textbook would have been expected to possess similar properties as claimed, which includes

good dimensional accuracy and surface details, so that parts require little or no subsequent machining or finishing operations (see page 263, paragraph 2). In regards to the features of claim 1, wherein the part has a thickness of less than 1mm and the surface is sufficiently smooth so that the surface may be painted directly without further processing, these features are already taught in the cited prior art. Kalpakjian teaches (page 263, 2<sup>nd</sup> paragraph) that parts made from such die casting operations require little or no subsequent machining or finishing operations, and because Kalpakjian discloses similar processes having good dimensional accuracy, it would have been expected that the processes disclosed by Kalpakjian would be capable of producing products with thickness less than 1mm.

The features of claims 2, 3, and 4 would have been obvious to one of ordinary skill in the art because the die casting processes of the textbook are capable of making a molded metal article having good dimensional accuracy and surface details, which includes engraving or protruding surface features, and also continuous surface features. The feature of claim 5, wherein the part is made of magnesium, would have been obvious in view of table 5.7 on page 263 of the textbook, which discloses the use of magnesium for die cast products.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as obvious over Marder et al.

Marder et al. teaches a process for molding metal using modified extrusion or die casting equipment, similar to that used for injection molding plastic (col. 6, lines 9-12). Marder et al. teaches that such a process would be used for semi-solid processing to produce net shape molded metal parts (col. 5 line 67 to col. 6, line 1).

In regards to the features of claim 1, molded metal parts made by a net shape forming process of Marder et al. would have been expected to be similar to the claimed molded metal parts which require little or no further processing to obtain good surface features, because Marder et al.'s process is similar to the claimed process (In Re Thorpe). Marder et al. teaches (col. 9, lines 19-29) that parts can be made as thin as 0.019 inches (0.48mm). Marder et al. also teaches a process for making products similar to those of the claimed invention, and teaches that such products are precision, net-shape products (col. 3, lines 39-41). It would have been expected that such products produced by the Marder et al. process would require little or no further processing and could be painted directly without further processing.

In regards to the features of claims 2 and 3, surface features which are an engraving or a protrusion would have been expected to be produced by the Marder et al. process, because Marder et al.'s process is capable of making molded metal parts having good dimensional control and good surface features.

In regards to the feature of claim 4, it would have been within the expected ability of one of ordinary skill in the art to make surface features in a molding process continuous as such surface features are made by patterns in the mold or die, and such patterns could be made either continuous or discontinuous depending on the desired surface feature.

In regards to the feature of claim 5, Marder et al. teaches magnesium alloys and means of forming them (see abstract).

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In regards to the features of claim 6, Marder et al. teaches (col. 9, lines 19-29) that thin castings made by the method of Marder et al. can have thickness as low as 0.019 inches, or 0.48mm. The scope of this teaching includes castings with thickness ranging from 0.5 to 1mm.

In regards to the features of claim 7, Marder et al. does not specifically teach a molded metal part having dimensions of approximately 21.0cm by approximately 29.7cm. However, the processes by which the articles of Marder et al. and the claimed invention are made are substantially the same, and both processes are shown to make articles with approximately the same thickness, and so it would have been expected by one of ordinary skill in the art that the process of Marder et al. would be useful for creating die cast products of the same dimensions as the claimed invention.

**(11) *Response to Argument***

In the appeal brief, appellant has argued:

- (1) Kalpakjian does not teach forming a molded metal part having a thickness of less than 1mm, and that can be painted directly without further processing; and
- (2) Marder et al. does not teach molded metal parts having a surface that can be painted directly without further processing.

With regards to appellant's argument (1), Kalpakjian teaches various die casting processes on page 261, including hot chamber processes where a piston injects molten metal into a cavity, which is substantially similar to the process used in making the claimed invention. On page 263, in describing such die casting processes, Kalpakjian teaches that "die casting has the capability for high production rates with good strength,



high quality parts with complex shapes, and good dimensional accuracy and surface detail, thus requiring little or no subsequent machining or finishing operations". The terms "complex shapes and good dimensional accuracy" suggest that such die casting is capable of creating parts with widely varying dimensions, including articles with small dimensions such as below 1mm, and that such castings can be done accurately.

Appellant's assertion that Kalpakjian "probably refers to casting thick sections" is without support and contrary to the prior art in evidence. Kalpakjian shows examples of magnesium die cast parts on table 5.7 of page 263, and such examples include power tools and automotive parts, and the cases of such power tools which are often the parts formed in such manner are thin, complex parts. It would be expected by one of ordinary skill in the art that the processes referred to by Kalpakjian would in fact be easily capable of forming parts with thickness below 1mm. With regards to the parts being suitable for painting directly without further processing, Kalpakjian specifically states that the articles typically have good "surface detail, thus requiring little or no subsequent machining or finishing operations". The logical conclusion of such a statement is that finishing operations such as grinding or polishing that are sometimes performed on castings need not be done on die cast parts, and that such parts are ready for use in the next processing step, such as painting. Also, applicant simply claims that the article must be "sufficiently smooth so that the surface is suitable for painting directly without further processing" without providing any quantitative basis of what that smoothness might be, such as a measurement of surface roughness. Surfaces not generally considered smooth, such as concrete and stucco, are routinely painted without difficulty,

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and so it can only be assumed that the parts of Kalpakjian would also be directly paintable without further processing. In summary, one of ordinary skill in the art at the time the invention was made would reasonably expect the articles produced by processes taught by Kalpakjian to have the properties of the claimed invention.

With regards to applicant's argument (2), Marder et al. teaches processes producing products similar to applicant's claimed invention, and Marder et al. also specifically teaches that such processes can produce cast parts as thin as 0.019 inches (0.48mm). Marder et al. also teaches that such parts can be made net-shape, which would require no further processing before use or painting. The teachings of Marder et al. are also directed towards magnesium alloys, and the process used is similar to that used to make the claimed invention. Therefore, it would be expected by one of ordinary skill in the art at the time the invention was made that die castings made using the teachings of Marder et al. would be substantially the same as the claimed invention, and have substantially the same properties. Again, no quantitative difference or unexpected result of the claimed invention is presented to show the patentability of the claimed invention over Marder et al.

In summary, both Kalpakjian and Marder et al. each show products substantially similar to the claimed invention, and the appellant has failed to distinguish the claimed invention from the cited prior art.

For the above reasons, it is believed that the rejections should be sustained.

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Respectfully submitted,

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AEW  
March 21, 2003

Conferees

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